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Does Financial Literacy Has Greater Role in Achieving Stock Investment Performance of College Investors?

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ABSTRACT

This research aims to integrate the perspectives of rationality and irrationality, which cannot be separated in capital market participants, especially young investors, in the decision-making process of stock investment. The research emphasizes whether financial literacy plays a significant role in investment performance. Additionally, overconfidence, considered a behavioral aspect, can act as an intermediary linking financial literacy and investment performance. Conducted on 77 students who invest in the investment gallery in Malang, using random sampling techniques, the research is an explanatory study with a quantitative approach through a questionnaire processed by SEM-PLS analysis using Smart PLS 3.0. The findings of this study highlight the positive influence of financial literacy on stock investment performance, while overconfidence was found to have a mediating effect on the relationship between financial literacy and stock investment performance. The characteristics of respondents who are young age with limited funds for stock investment lead to low expectations of returns, resulting in quick satisfaction and then affecting stock investment performance. Therefore, objective and appropriate decision-making approaches might not absolutely achieve success, as simple strategies such as behavioral biases or psychological factors can lead to optimal investment performance.

Keywords: College Investors; Finance; Financial Literacy; Overconfidence; Stock Investment Performance

INTRODUCTION

Stock market is regarded as an effective instrument for increasing corporate capital (Zuravicky, 2005). Various approaches have been explored to identify elements that can enhance and develop activities in the capital market. The stock market, a vital avenue for corporate capital, has evolved amid various approaches. Before behavioral finance theory, investment decisions relied on utility theory, assuming rationality. Researches in traditional finance highlight a preference among individual investors to approach their decisions in investing with rationality (Almansour et al., 2023). Within a study by Arora and Kumari (2015), investors adopt various existing financial theories and models to consider risks and expected returns in their investment decisions. Previous studies have explored multiple variables, but their findings have been leaned more towards the goal of achieving profits through dividends or during periods of stock price appreciation (Croushore, 2007). Besides those findings, recognizing the limitations of rational economic models in anticipating investment performance and existing focus on alternative cognitive bias, present studies suggest a behavioral model for evaluating investors' investment performance through their investment decisions (Ul Abdin et al., 2022). When strategic decision-making processes are flawed, performance is likely to be negatively impacted. Therefore, it is important to consider some factors that improving decision making thereby impacting investment performance

Investor's ability to maintain their effective investment performance is linked to their ability to accurately analyze and decide upon their investment decision. Making appropriate investment decisions is influenced by investors' cognitive abilities, which are essential in enhancing an understanding of risk and financial literacy (Mushafiq et al., 2021). Concept of financial literacy encompasses essential component of individual finance that play a pivotal impact in reducing the costs linked to stock market involvement and simplifying the financial planning process for individuals, especially those immersed in investment activities. Prior research discussed the inception of exploring the correlation on financial literacy and investor process of decision-making amidst uncertainty and the results show that investors' capacity to make informed decisions will be restricted by their lack of knowledge (Bayrakdaroğlu & Şan, 2014). Several studies indicated that investors investor that possess greater financial literacy tend to achieve positive investment returns, implying that a higher level of financial literacy might contribute to better financial outcomes and is significantly correlated with enhanced performance of investment (Pikulina et al., 2017). Additionally, financial literacy significantly influences portfolio decisions by reducing the additional (non-monetary) investment expenses, and studies reveal that it enhances the chances of involvement in investments in the stock market (Van Rooij et al., 2011).

However, earlier studies also reveal different perspectives regarding the positive role of financial literacy in investment performance. Individuals with enhanced financial literacy prefer to choose passive investment options because of their cost effectiveness (Bayrakdaroğlu & Şan, 2014). A study by Kawamura et al., (2021) highlighted that financial literacy contributes to lead individual investor to exhibit both courage and also recklessness in various financial domains. This finding arises through the connection of financial literacy to unconventional financial behaviors and attitudes, including excessive borrowing, speculative investment, and naivety in finances (Kawamura et al., 2021). Numerous initiatives aimed at enhancing financial outcomes and also financial literacy levels have been implemented across federal, state, and local government, but according to previous research, the outlook for the effectiveness of these initiatives doesn't show promising results (Balasubramnian & Sargent, 2020). Additionally, through an empirical study and meta-analysis of existing research on financial literacy, it is

evident that, despite the successfully of initiatives to increase financial knowledge, its contribution to a consumer's financial decisions remains relatively small (Fernandes et al., 2014).

The discovery of several study results that revealed diverse perspectives regarding the role of financial literacy to investment performance have led the exploration of other aspect such as cognitive biases tend to play a role in financial decision-making beyond objective financial knowledge. Baker and Nofsinger (2010) highlight differences in study results regarding the impact of financial literacy on investors' decisions regarding investment performance, requires a sharper study by including the role of fundamental cognitive heuristic error variables and biases in psychological through the process of investment decision. Decision-making can be shaped by biases or self-control issues in addition to objective financial knowledge (Balasubramnian & Sargent, 2020). Behavioral aspects and unavoidable psychological biases can act as barriers, preventing individuals from making rational decisions (Dangol & Manandhar, 2020).

Recognizing the limitations of rational economic models in anticipating investment performance and the lack of attention to cognitive biases cognitive biases that can make benefits to the both individual and markets, studies indicate behavioral finance can assess the investment performance of individual investors (Ul Abdin et al., 2022). Behavioral finance is considered to understand individual decisions in economics domain by integrating cognitive, psychological, and behavioral theory with standard finance theory and conventional economics (Baker & Nofsinger, 2010). Cognitive biases represent personal beliefs that support individuals in facing complex decisions (Bazerman et al., 1984). Furthermore, numerous researchers suggest that heuristic biases have an influence in shaping the prediction and decision-making of financial, including material advantages or income (Abarbanell & Bernard, 1992). Other researchers confirmed that psychological elements can help for understanding behavior of stock market players regarding declining of stock price and market bubbles (Gao & Schmidt, 2005).

Baker and Nofsinger (2010) highlighted that behavioral bias, including psychological biases, fundamental heuristics, and cognitive errors play a role to the deliberation of investors' decision in their investing which shaping investment performance. Consequently, the presence of behavioral biases acts as a barrier for investors' decision-making based on rationality (Dangol & Manandhar, 2020). However, negative side of bias becomes apparent when individuals failed to recognize their own limitations, leading in in flawed decisions based on incorrect assumptions (Chira et al., 2008). It's important to note that overconfidence as a behavioral bias doesn't always result in negative outcomes in financial decision-making (Seraj et al., 2022; Yusuf et al., 2021). The tendency for individuals' overconfidence to underestimate the probability risk of losses leads to increase trading frequency and the development of portfolios with elevated risk (Seraj et al., 2022; Dangol & Manandhar, 2020). Hence, it suggests that overconfidence, as a behavioral bias, can encourage the correlation of financial literacy to improved investment performance

Research on financial behavior has been conducted in different countries, including developed nations like United States and Europe (Caparrelli, et al., 2004), as well as in emerging markets like Malaysia and Kenya, as indicated by Lai (2001) and Waweru et al. (2008). However, the results of this study remain inconclusive and rely on the behavioral patterns observed in individuals within each specific country. Indonesia, with a population predominantly comprising productive-age millennials, holds potential opportunities for the development of its capital market. Investors belonging to Generation Z in Indonesia that represents a dominant investor segment faces the challenge of a low

financial literacy index, which is only 13.53%. This figure is considerably lower than the national average index of 38.03%, as shown by the National Financial Literacy survey conducted by the OJK. This issue acts as a barrier for Generation Z individuals desiring to engage in investments, potentially leading to irrational decisions due to low literacy levels. This study holds importance for investors and players in the stock market, raising awareness about the influence of emotional as well as cognitive factors on making investment decisions. The findings of this research can provide valuable insights for regulatory authorities and policymakers on stock market by enhancing their insights about mechanisms and the role of behavioral aspects in making investor decision.

This research enhances behavioral finance theory by integrating analysis of financial literacy, overconfidence, and stock investment performance. Acknowledging the inseparability of rational and irrational behaviors in stock investment, the study offers fresh insights into understanding investors' decision-making mechanisms. It contributes significantly to comprehending the financial behavior of stock market participants, particularly within the context of Generation Z.

LITERATURE REVIEW

Heuristic Theory

Heuristic theory offers an explanation for the strategies involved in guiding information search and adjusting problem descriptions to get solutions. Heuristics are simple guidelines used by decision-makers in facing uncertain and also complex situations, helping to reduce the process of estimating probabilities and forecasts (Shah et al., 2018, Tversky & Kahneman, 1973). This theory enabled faster decision-making compared to through rational analysis of available information (Shah et al., 2018), then becomes beneficial, especially in time-constrained situations (Waweru et al., 2008). Additionally, guided by this heuristic theory, investors in their role as decision-makers utilize heuristics to simplify judgments and enhance the efficiency on the process of choosing decisions in complex and ambiguous situations, thereby streamlining the decision-making process by converting them into more straightforward judgments, thus decreasing the challenge of assessing probability (Tversky & Kahneman, 1979). This approach allows investors to accelerate decision-making in contrast to the more rational processing of existing information (Shah et al., 2018). This concept of heuristic theory supported by other research showed that financial professionals, both individuals and groups, frequently utilize these practical rules or shortcuts to simplify and improve decision-making in complex and uncertain situations, as highlighted (Shah et al., 2018). Due to limited cognitive capacity, investors employ cognitive heuristics to process information, leading to deviations from rational calculations known as behavioral biases. Heuristic is a term utilized to characterize a practical and crucial approach to solving problems that logic and probability theory cannot address. Within this framework, studies focused on general rules and the deviations from rational calculations they produce are termed behavioral biases. Thus, heuristics are present alongside irrationality and inherent cognitive illusions.

Theory of Planned Behavior (TPB)

According to previous literature about TPB, individual behavioral patterns are shaped by knowledge derived from cognitive and attitudinal factors, contributing to the development of tendencies toward behavioral biases (Ajzen, 1991). This theory is built on the premise that individuals' psychological biases or behavioral biases act as obstacles to make a rational decision, resulting in adverse outcomes regarding investment choices and suboptimal investor performance. Additionally, judgement, intuitive thinking, and decision-making can impact the effectiveness of investor decisions in finance (De Bondt et al., 2013) whether cause irrational behavior (Almansour et al., 2023). Psychological

factors significantly influence investment decision-making, contributing to biased financial choices where individuals incorporate psychological elements that deviate from rational behavior (Hashmi et al., 2023). Therefore, it can be seen the phenomenon that when investors are making investment decisions, their considerations extend beyond the evaluation of returns, risks, and prospects.

Prospect theory

Prospect theory is concerned with the process of making decisions subjectively that shaped by investors' value systems, where individuals often undervalue possible returns relative to certain ones, then how they behave in equivalent conditions can be different based on the context of losses or gains presented, as described by Tversky and Kahneman (1979). The primary aim of prospect theory is to illustrate the process of individuals navigate their decision-making under situations of uncertainty, chance and risk regarding the outcomes of choices and this theory challenges the traditional economic perspective that decision-makers are rational actors who seek to maximize expected utility. Essentially, prospect theory emerged as a critical response to the limitations of expected utility theory in describing how people make choices in situations of risk that the fundamental principles of prospect theory have been applied to gain insight into how individuals make choices among particular alternatives (Tversky & Kahneman, 1979). Prospect theory is established upon the assumption that inherent and continuous behaviors are driven by psychological factors, guiding individuals' decision-making in conditions of uncertainty. In situations of uncertainty and risk, individuals typically shape their behavior by collecting various forms of information before reaching a decision (Ahmad & Shah, 2020). Additionally, compared to expected utility theory, which underscores investors' rational expectations, prospect theory more prioritizes on investors' subjective choices regarding decisions related to investments (Shah et al., 2018; Tversky & Kahneman, 1979).

Stock Investment Performance

Investment activities can be related to various types, including the allocation of funds to tangible assets such as gold, machinery, land, and buildings, as well as financial assets such as shares, deposits, and bonds. Ahmad and Shah (2020) described that stock investment performance is determined by the level of satisfaction in obtaining returns that exceed expectations. Achieving high stock investment performance implies that investors, whether they are individual investors or corporates, including company directors and investment managers, derive satisfaction from the profits yielded by their invested funds. In simple terms, stock investment performance reflects the outcomes of decisions made in allocating funds within the stock investment portfolio. Investors defined as individuals that committing their money to investment products with the expectation of returns, are primarily focused on maximizing returns while minimizing risk. Previous research consistently correlates stock investment performance with the financial behavioral bias and financial literacy of investors, that optimal and rational investment decisions heavily rely on financial knowledge highlighting the importance of financial knowledge for making effective and rational investment decisions (Merton, 1987). Standard financial knowledge implies that educated people can make decisions in rationally all the time. Moreover, the concept of behavioral finance recognizes that decision in investing may lack from rationality due to incomplete information, heuristics, anomalies, limited rationality, and biases including behavioral and psychological. Within the theorical of cognitive aspect identifies that heuristics and biases in cognitive ability have potential to lead investors to make decisions that are less rational, viewing them as mental shortcuts in complex situations. Systematic errors, according to Tversky and Kahneman (1973), are caused by heuristics and biases, resulting in adverse outcomes.

Financial Literacy

Financial literacy as defined in Wahyuni et al, (2022) refers to understanding how to effectively manage finances, including aspects such as financial planning, insurance, borrowing, saving, and investing. Specifically, the scope of financial knowledge includes individual knowledge about how to use financial products obtained through education or personal experience, the application of financial literacy dimensions is related to individual abilities based on their confidence in using their financial knowledge to use financial products well (Putri et al., 2021). Essentially, an individual's financial literacy level corresponds with the effectiveness of their financial decisions in managing their economic resources (Siregar & Simatupang, 2023). Enhanced financial literacy tends to lead to more rational decision-making in financial matters (Bayrakdaroğlu & Şan, 2014). While traditional economic theory assumes rational behavior of capital market investors, ensuring market efficiency, available information reflects prices (Hashmi et al., 2023).

H1: Financial literacy plays a significant impact to stock investment performance

Overconfidence

Overconfidence represents a behavioral bias that influences how individuals make their financial decision, driven by their perceived judgment, leading to an overestimation of their own capabilities, and this excessive confidence can lead to inaccurate predictions about the success of investing in shares (Pompain, 2012; Ahmad & Shah, 2020). Overconfidence may result in excessive trading activity and consequently lower annual investment returns due to increased transaction costs. Furthermore, investors displaying overconfidence tend to maintain less diversified portfolios and take on more risks than their financial capacity would generally permit (Pompain, 2012). Moore and Healy (2008) complement the concept of overconfidence, that overconfidence occurs when an individual exaggerates the likelihood of success in a stock's performance, a behavior observed when someone believes they have superior judgment or is overly certain without acknowledging the presence of uncertainty. The consequence of this behavior on the process of making decisions in investing can be negative, as it encouraging irrational actions that cause investors to overvalue their knowledge and abilities. Therefore, Investors characterized by elevated overconfidence are disposed to overestimate their level of knowledge.

H2: Overconfidence plays a significant impact to stock investment performance

The theoretical basis of rationality in investment decision-making has been extensively explored and became a topic debated as the theory of behavioral bias was presented, deviating from the extensively studied standard behavior. Findings from previous research showed that investors displaying overconfidence not only achieve favorable returns relative to rational investors but can also potentially enhance their profits by incorporating rationality into their decision-making processes (Ul Abdin et al., 2022). The presence of both rational and irrational actions among investors contributes significantly to market volatility (Ul Abdin et al., 2022). Past research findings show that an increased level of overconfidence has a significant and positive impact on investment decisions and the correlation between financial literacy and investment choices is positively moderated by overconfidence (Seraj et al., 2022). Additionally, other research showed investors' decisions regarding their investment levels are significantly and positively impacted by their levels of overconfidence, as those with strong overconfidence in financial matters tend to over-allocate investments, choosing higher levels of investments compared to investors who are underconfidence (Pikulina et al., 2017). Therefore, overconfidence has the potential to serve as a mediating factor in the relationship between financial literacy and investment performance. Understanding the impact of overconfidence is very important to understand how an individual's financial

literacy affects their investment performance which is obtained because of the bias of overconfidence behavior in investment decisions.

H3: Overconfidence mediating the relationship between financial literacy and stock investment performance

RESEARCH METHOD

Respondents

This study adopts an explanatory research design within a quantitative research approach to test the hypothesis, employing a survey method as the primary observational instrument. Data was collected electronically through Google Forms, in August 2023. The population of this research is undergraduate students who invest in investment gallery in Malang. This study used random sampling technique.

Measuring Instrument

Stock Investment Performance

Stock investment performance is a person's level of satisfaction in obtaining stock investment portfolio profits, namely real income greater than expected (Ahmad & Shah, 2020). Investment performance measurements are taken from research by Ahmad and Shah (2020) using a five-point Likert scale to assess their respective investment performance through indicators of satisfaction level and continuity of capital gain growth. Several indicators used in this research to measure stock investment performance include investment decisions satisfactory level and return rate (Ahmad & Shah, 2020). Respondents were asked to rate their respective investment performance using a five-point Likert scale ranging from no risk to very risky.

Financial Literacy

Measurement of financial literacy relies on scores derived from observations pertaining to financial knowledge, specifically focusing on fundamental financial concepts such as inflation, simple interest, compound interest, money illusion, risk diversification, and the primary objectives of insurance policies. The measurement utilizes a Likert scale, ranging from 1 to 5 points, do not know = 1, definitely false = 2, probably wrong = 3, probably true = 4, definitely true = 5, derived from Van Rooij et al.'s research (2011). Money management behavior indicators are gauged on a 5-point Likert scale, following Oquaye's study Indicators of consideration in financial decision-making are basic knowledge, advanced knowledge, money management behavior, and consideration in making decisions (Van Rooij et al., 2011)

Overconfidence

Overconfidence is a person's behavioral bias in financial decision-making due to the perception of individual judgment that makes them overestimate their competence, giving rise to excessive confidence and leading to erroneous predictions that they will be successful in investing in stocks (Pompain, 2012; Ahmad and Shah, 2020). The measurement of overconfidence is taken from the research of Ahmad and Shah (2020) through indicators: over-estimation, over-placement, and over-precision, and then this study used a 5-point Likert scale for measuring responses of how much investor agree or disagree.

Data Analysis Technique

To examine the direct associations and path analysis between variables, this research used Structural Equation Model Partial Least Square (SEM-PLS). SEM-PLS is a statistical technique for testing and estimating relationship analysis by integrating factor and path analysis. The testing process using PLS is divided into two stages: the first

stage involves assessing the validity of the measurement model through validity and reliability tests, and the second stage focuses on testing the structural model using prediction models to evaluate hypotheses. The application software used in this study is smartPLS.

RESULTS

Demographic Characteristics of the Respondents

Of the total 77 students who were respondents, the majority were male at 79%, while women were 21%. This proportion reflects the dominance of undergraduate students in Malang who invest in stocks is male. The age range of respondents is dominated by the Gen-Z generation, with 86% aged ≤ 26 years. Generation Z, born between 1995-2010, has a high adaptability to technological developments, including access to company financial data and the use of financial technology (Fintech). A total of 34% of Gen-Z students have an income of ≤ Rp. 2,000,000 per month, corresponding to the majority of respondents being under 26 years old. The largest source of income comes from independent with the help of parents at 41%, indicating that financial support from parents makes young investors more courageous in making stock investment decisions.

Evaluation of Measurement Models

In the early stages of constructing the research scale, this study conducts tests for convergent validity and discriminant validity on the targeted constructs. The specifics of the validity and reliability examinations are outlined in Table 1.

Table 1. Validity Analysis

Latent Variabel	Indicator	Convergent Validity		Discriminant validity	
		Loading Factor	Result	AVE	Result
Financial Literacy	LK3.5	0.905	Valid	0.735	valid
	LK3.6	0.828	Valid		
	LK3.7	0.838	Valid		
Overconfidence	O.2	0.856	Valid	0.742	valid
	O.5	0.871	Valid		
	O.6	0.801	Valid		
Investment Performance	Y.1	0.887	Valid	0.710	valid
	Y.2	0.952	Valid		
	Y.3	0.813	Valid		
	Y.4	0.784	Valid		

Source: Processed Data 2023

Table 1 presents the outcomes of the convergent validity assessment, revealing factor loading values namely financial literacy, overconfidence, and investment performance, which exceed 0.70 for each variable indicator as recommended by Hair et al. (2017). Furthermore, discriminant validity is evident in the root mean value of the variance extracted (AVE), determined by examining the coefficient value of each variable with the correlation value of the relationship between each variable within the research model, where the validity results are shown if each root AVE value is more significant than 0.50. As a result, the items used in this research can be valid. After completing the validity evaluation, reliability analysis was performed utilizing both Cronbach's alpha and composite reliability values. The outcomes of this reliability assessment are depicted in Table 2.

Table 2. Reliability Analysis

Latent Variable	Cronbach's alpha	Composite Reliability
Financial Literacy	0.820	0.840
Overconfidence	0.882	0.891
Investment Performance	0.797	0.813

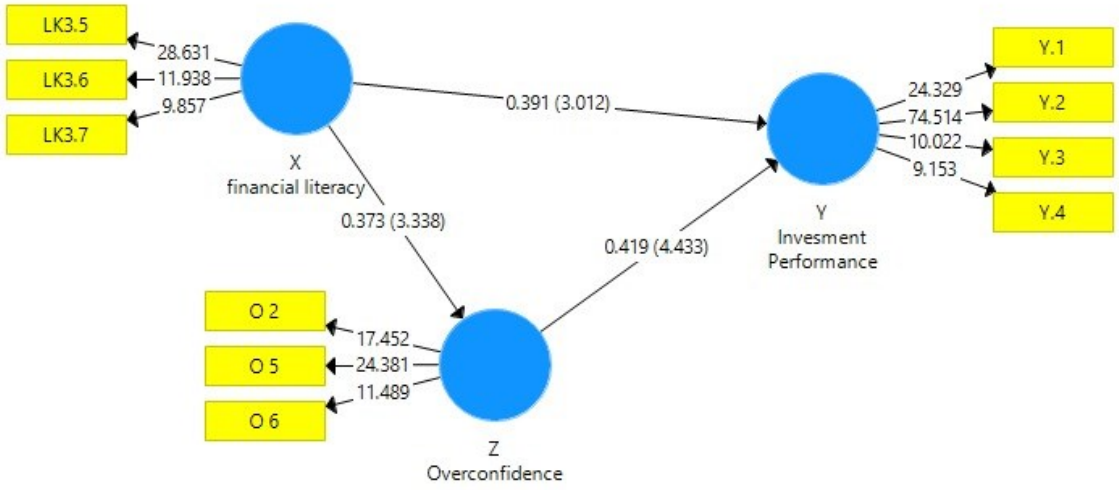
Source: Processed Data 2023

Based on the information in Table 2, the data utilized in this study demonstrate reliability, surpassing the established threshold of 0.70 (Hair et al., 2017). Each variable exhibits Cronbach's alpha and composite reliability values exceeding 0.7, as indicated in Table 2. Consequently, the items employed in this study can be deemed reliable.

Structural Model Assessment

Within the framework of this research, structural model is a representation of the causal associations among latent variables formed from the theoretical substance (Hair et al., 2017). Validation of the PLS structural model executed through the computation of R2 and path coefficients, with the comparison of t-statistics in the Smart PLS output to the t-table serving as a pivotal step. Initially, the primary focus of this analysis is on the direct relationships among financial literacy, overconfidence, information acquisition, and investment performance. Figure 1 presents the outcomes of evaluating the structural model, along with the corresponding t-statistic values for each hypothesis.

Figure 1. Conceptual Model



Source: Processed Data 2023

Table 3. Hypothesis Testing

Latent Variable	Path Coefficient	T Statistics	P Values
Financial Literacy -> Investment Performance	0.391	3.012	0.001
Financial Literacy -> Overconfidence	0.373	3.338	0.000
Overconfidence -> Investment Performance	0.419	4.433	0.000
Financial Literacy -> Overconfidence -> Investment Performance	0.156	2.827	0.002

Source: Processed Data 2023

Through the outcomes derived from analysis on Figure 1 and Table 3, the direct impact of financial literacy on stock investment performance reveals a significant and positive impact ($\beta = 0.391$, $t = 3.012$, $p < 0.05$), leading to the acceptance of hypothesis 1. Furthermore, the analysis into the influence of overconfidence on stock investment performance also show significant and positive results ($\beta = 0.419$, $t = 4.433$, $p < 0.05$). Therefore, this outcome supports hypothesis 2 to be affirmed and accepted. Additionally, the path analysis result also showed that there is a mediating role of overconfidence in the correlation between financial literacy and investment performance. This is shown by research findings reveal an indirect relationship between these variables by a positive path coefficient of 0.156 with the t-statistic and p-value standing at 2.827 and 0.002, respectively meets the significance requirements. Based on these calculated results of these calculations, it can be concluded that overconfidence can act as a mediator in shaping the influence of financial literacy on stock investment performance, thereby supporting hypothesis 3 to be accepted. In summary, the results affirm the acceptance of the direct testing of hypothesis 1 and 2 hypothesis and also indirect testing hypotheses 3.

DISCUSSION

Financial literacy has a significant effect on stock investment performance. This significant result explains that respondents have effective money management skills, although this is not balanced by a fairly good level of knowledge regarding basic and advanced financial concepts. The competence in these skills explained by the frequency distribution score which emphasizing that young investors, mainly Gen-Z students demonstrate considerable financial literacy. The concept of literacy itself encompasses competence in social interactions associated with knowledge, culture, and also language which involves how individual's ability plays role within society (Wahyuni et al., 2022). Consequently, ownership alone cannot be utilized as a comprehensive benchmark for assessing the investment performance of the shares they hold. Furthermore, impact of financial literacy, regardless of being positive or negative, do not directly influence the performance of individually owned shares, as individuals often do not employ their financial knowledge practically in selecting the shares for investment. Additionally, this research contributes insights into the Theory of Planned Behavior (Ajzen, 1991), proposing that investors' literacy skills play a role in shaping their decisions in investments, aligning with the principles of utility theory, which assume rationality in the making of investment decision.

Overconfidence has a significant influence on stock investment performance. Respondents from students who invest in investment gallery in Malang, which are dominated by Gen Z and millennials who have excessive self-confidence regarding their behavior in finance, tend to participate more in the stock market The significant influence of Overconfidence on stock investment performance can be caused by the existence of indicators that contribute to Overconfidence in students, so it also means that Overconfidence which consists of excessive predictions, allocations and financial accuracy in students is able to play a role important in improving the performance of the stock investments they own. Students as respondents who are too self-confident tend to make excessive investments and take greater risks than they should. This will indeed provide profits in the short term, but it is feared that it will decrease in long-term investments. In addition, individuals who are overconfident often ignore valid information and rely on inaccurate information as a reference for investing. Overconfidence, on the other hand, is a strong determinant in making stock investment decisions. Students who invest in investment gallery in Malang as respondents are considered to be very confident about the shares in their portfolio, in accordance with Prospect Theory by Tversky and Kahneman (1979) which considers that human behavior has unnatural

thoughts and is often contradictory in making decisions and is not always rational. Therefore, even though Overconfidence has a positive influence on stock investment performance in this research, its presence must still be watched out for in order to obtain more optimal stock investment results.

Mediating Role of Overconfidence

Investor are more likely to feel confident of their investment skills and knowledges through their financial literacy, thereby helping them making financial decision, encouraging their involvement in financial markets, then leading to increase trading volume (Hashmi et al., 2023). Financial literacy plays a crucial role in investors' financial decisions, as stated in previous studies which indicating a lower financial literacy revealing an inclination to decreasing of stock market participation (Van Rooij et al., 2011). Investor with higher financial literacy tend to make more optimal investment decisions, and when individuals display overconfidence in their investment activities, this correlation become stronger (Pikulina et al., 2017). This discussion arises from the recognition that overconfidence, as a behavioral bias, does not necessarily have a negative effect on investors' financial decision-making processes (Seraj et al., 2022; Yusuf et al., 2021). On this research, overconfidence as a behavioral bias is proven to play its function to connecting the relationship of financial literacy and investment performance. This result is supporting the previous finding that showed that an increased level of overconfidence has a significant and positive impact to investment decisions and the correlation between financial literacy and investment choices is positively moderated by overconfidence (Seraj et al., 2022). Moreover, this investigation goes along with argument about the development of behavioral theory in finance explains that investor behavior in the decision-making process is not only based on rational thinking, but also on several irrational elements such as feelings, emotions, attitudes (Kawamura et al., 2021), community opinions, principles, and other psychological elements (Almansour et al., 2023; Baker & Nofsinger, 2010). Thus, investment performance is greatly influenced by whether an investor's investment behavior is biased or not.

CONCLUSION

This study has significant implications for the development of the concepts of financial literacy, overconfidence, and stock investment performance. Based on the results, financial literacy has a significant and positive impact to investment performance. Overconfidence also showed a significant and positive correlation to improve investment performance. Additionally, overconfidence as behavioral bias can act as a mediator in linking the association between financial literacy and investment performance. Therefore, objective and appropriate decision-making techniques may not always be vital for achieving success, as straightforward and unsophisticated strategies, such as biases on behavior, heuristics, and psychological factors can demonstrate optimal investment performance under certain conditions.

Moreover, the findings of this research indicate an investigation in irrational decisions, as investors rely on their behavioral biases rather than information, suggesting that emotional aspects often dominate investment decisions. This argument showed by the role of overconfidence which reflects investors’ optimism tends to increase investment performance and it is important for young investors to improve their cognitive elements, including financial literacy, to make more rational investment decisions and minimize long-term risks. The role of university policymakers can also improve access and facilitation of information provision to young investors to help them make more informed and rational financial decisions.

These empirical results support the theory of planned behavior, showing that financial decisions to invest are influenced by cognitive elements (knowledge and skills) and psychological elements (attitudes). Overconfidence and information acquisition are the main factors affecting student stock investment performance. Tversky and Kahneman's (1979) prospectus theory also proved relevant, illustrating that individuals do not always use cognitive elements in predicting investment risk. Overconfidence, as another factor, makes individuals more willing to take high risks in the hope of large future returns, ignoring the actual risks. This factor is identified as the main cause of risky behavior in equity investment. Furthermore, heuristic theory and dual process theory (Tversky and Kahneman, 1979) suggest that investors often use rules of thumb or shortcuts, such as overconfidence, to make efficient decisions.

LIMITATION

This study has several limitations that need to be considered. First, this study is limited to undergraduate students who invest in investment gallery in Malang, so the results may not represent the general condition of students. The focus on one faculty may affect the generalizability of the findings. Secondly, the respondent selection criteria limit variation, by targeting students with limited funds for stock investment. This may affect the representativeness of the results to the entire population of student investors. Thirdly, the method of distributing the survey through Google Forms via WhatsApp may limit direct interaction and respondents' understanding of the questions. This limitation may result in answers that do not fully reflect respondents' views and may introduce bias. Therefore, it is necessary to be cautious in generalizing the results of this study and consider contextual variations.

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DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interest.

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